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INDEX TO VOLUME 253

January to June, 1952

References with (N) are Notes from the National Bureau of Standards, those with (F) are Notes from The Franklin Institute Laboratories, and those with (C) are Current Topics.

A

Abrasives. Classification of grinding wheels, 167(F)

Acoustics. A proposed musical notation (Moon), 125

Air contamination. A freeze-out apparatus for the collection of air contaminants, 505(F)

Airglow. The colloquium on auroral physics (Gerson), 331

Alger, P. L. and J. J. Smith: The use of the null-unit function in generalized integration, 235

Analog computers. An advanced time scale analog computer, 159(F)

Antibiotics. Chloromycetin for yaws and tropical ulcer, 92(C)

Applied mechanics. Buckling of continuous beams on elastic supports (Saibel), 563

Archeology. Radioactivity of archeological specimens, 532(C)

Archibald, Frank R.: The stepped shape film applied to a journal bearing, 21

Army ordnance today (Quinton), 535

Arterial pulse. A device to measure the arterial pulse wave, 144(C)

Artificial lightning. Investigation of resistance and power in experimental lightning discharges (Norinder and Karsten), 225

Artillery. Lightweight tripod for artillery, 562(C)

Askarel. New type askarel, 623(C)

Asphalt. A progress report of the NARC, 605(F)

Aspirator. An airborne aspirator, 28(C)

Astia. Ask Astia, 276(C)

Astronomy. Solar radio noise bursts, 601(N)

Atomic energy. Breeder reactor generates power, 281(C)

Aurora. The colloquium on auroral physics (Gerson), 331

Auroral physics. The colloquium on auroral physics (Gerson), 331

Automatic control systems. A theory of multidimensional servo systems (Golomb and Usdin), 29

Aviation. Helicopter industry awarded Collier trophy, 234(C)

Human response studies, 251(F)

Portable analog field plotter, 285(C)

A special escape capsule for supersonic planes, 374(C)

Axostat, 532(C)

Ayre, R. S.: Transient vibration of linear multi-degree-of-freedom systems by the phase-plane method, 153

B

Batteries. Dry battery powered repeating flash unit, 94(C)

Bawden, J. L.: Discussion of "A proposed musical notation" (Moon), 142

Beam intensification in a high-voltage oscillograph, 174(N)

Bearings. The stepped shape film applied to a journal bearing (Archibald), 21

Beryllia. High thermal conductivity ceramics, 531(C)

Bibliography. Ask Astia, 276(C)

Bisplinghoff, R. L. and C. S. Doherty: Some studies of the impact of vee wedges on a water surface, 547

"Blotter" analysis for plastics, 623(C)

Boiler water. New chemical feed packaged unit, 562(C)

Book reviews

Ahrendt, William R. and John F. Taplin: Automatic feedback control, 82

Allen, John S.: Standard time in America, 524

Anner, George E.: Elements of television systems, 187

Annett, F. A.: Practical industrial electronics, 615
Annual report on the progress of chemistry, cumulative index, 1904-1949, 274
Annual reports on the progress of chemistry for 1950, 274
Baitsell, George A., ed.: Science in progress, 270
Bhagavantam, S. and T. Venkarayudu: Theory of groups and its application to physical problems (sec. ed.), 188
Blum, Harold F.: Time's arrow and evolution, 85
Bondi, A.: Physical chemistry of lubricating oils, 273
Bridgman, P. W.: Studies in large plastic flow and fracture, 267
Brown, A. J. Youngsen: The American economy, 523
Butler, J. A. V., ed.: Electrical phenomena at interfaces, 617
Cameron, Frank: Cottrell: samaritan of science, 614
Campbell, Murray and Harrison Hatton: Herbert H. Dow, pioneer in creative chemistry, 84
Cohen, I. Bernard and Fletcher G. Watson, ed.: General science in education, 521
Cosslett, V. E.: Practical electron microscopy, 370
Cottrell, Leonard: The lost pharoahs, 87
Diserens, Louis: The chemical technology of dyeing and printing, 273
Dobrin, Milton B.: Introduction to geophysical prospecting, 522
Dushman, Saul: Fundamentals of atomic physics, 370
Farrington, G. H.: Fundamentals of automatic control, 521
Fink, Donald G.: Television engineering, 368
Fisher, Douglas A.: Steel serves the nation, 1901-1951, 274
Gardiner, Mary S.: The principles of general biology, 523
Gessow, Alfred and Garry C. Myers, Jr.: Aerodynamics of the helicopter, 613
Goodlet, B. L.: Basic electrotechnics, 617
Gregg, S. J.: Surface chemistry of solids, 86
Hawkins, George A.: Thermodynamics, 524
Hegner, Robert W. and Karl A. Stiles: College zoology, 189
Henney, Keith and Glen A. Richardson: Principles of radio, 371
Hoelscher, Randolph P.: Graphic aids in engineering computation, 616
Holloway, Mark: Heavens on earth, 186
Holmyard, E. J.: British scientists, 86
Houston, William V.: Principles of quantum mechanics, 618
Hund, August: Short-wave radiation phenomena, 267
Hynek, J. A.: Astrophysics, 367
Identification of textile materials, 371
Jackson, Willis: High frequency transmission lines, 188
Jacobson, C. A., ed.: Encyclopedia of chemical reactions, 88
Jeffress, Lloyd A., ed.: Cerebral mechanisms in behavior: The Hixon symposium, 520
Johnson, Lee H.: Nomography and empirical equations, 620
Kamen, Ira and Richard H. Dorf: TV and electronics as a career, 274
Kaufmann, R. H. and H. J. Finison: D-c. power systems for aircraft, 520
Keister, William, Alistair E. Ritchie and Seth H. Washburn: The design of switching circuits, 272
Kelsey, Erwin B. and Harold G. Dietrich: Fundamentals of semimicro qualitative analysis, 189
Kohl, Walter H.: Materials technology for electron tubes, 185
Kortüm, G. and J. O'M. Bockris: Textbook of electrochemistry, Vol. 1, 82
Krogdahl, Wasley S.: The astronomical universe, 614
Kron, Gabriel: Equivalent circuits of electric machinery, 367
Langhaar, Henry L.: Dimensional analysis and theory of models, 84
Latimer, Wendell M. and Joel H. Hildebrand: Reference book of inorganic chemistry, 189
Lewin, L.: Advanced theory of waveguides, 268
Lovell, Alfred H.: Generating stations, 88
Low, A. M.: What's the world coming to?, 83
Marcuvitz, N., ed.: Waveguide handbook, 519
Miller, George A.: Language and communication, 272
Mitchell, J. W., ed.: Fundamental mechanisms of photographic sensitivity, 269

Murnaghan, Francis D.: Finite deformation of an elastic solid, 517
Nagell, Trygve: Introduction to number theory, 272
Nehari, Zeev: Conformal mapping, 615
Nininger, H. H.: Out of the sky, 618
O'Donnell, Paul D.: Production control, 619
Organic synthesis: an annual publication of satisfactory methods for the preparation of organic chemicals, Vol. 31, 371
Powell, Ralph W.: An elementary text in hydraulics and fluid mechanics, 274
Rabald, Erich: Corrosion guide, 189
Reed, Henry R., T. C. Gordon Wagner and George F. Corcoran: Electrical communications experiments, 371
Ries, Estelle H.: Elias E. Ries, inventor, 619
Robinson, Radcliffe F., Michael D. Phillips and Margaret G. Nagelsen: A bibliography on "The effects of X-ray on bacteria," 274
Sax, N. Irving, W. W. Schultz and M. J. O'Herin: Handbook of dangerous materials, 184
Schonland, B. F. J.: The flight of thunderbolts, 518
Seelye, Elwyn E.: Data book for civil engineers, 275
Sharp, H. Oakley: Practical photogrammetry, 271
Sheingold, Abraham: Fundamentals of radio communications, 185
Siu, R. G. H.: Microbial decomposition of cellulose, 270
Smart, E. Howard: Advanced dynamics, 271
Smith, Alpheus W.: Careers in physics, 87
Smoluchowski, R., J. E. Mayer and W. A. Weyl: Phase transformation in solids, 86
Sokolnikoff, I. S.: Tensor analysis, 369
Stanford, E. E.: Man and the living world, 88
Synthesis of electronic computing and control circuits, 83
Venkataraman, K.: The chemistry of synthetic dyes, 613
Villars, D. S.: Statistical design and analysis of experiments, 369
Wylie, C. R., Jr.: Advanced engineering mathematics, 184
Year book of the Textile Institute and Library catalogue No. 4, 1951-1952, 371
Breeder reactor generates power, 281(C)
Buckling of continuous beams on elastic supports (Saibel), 563
Bush, V. and J. E. Jackson: Note on "correction of spherical error of a pendulum," 66

C

Calcium silicate. Salt dampening problems solved, 546(C)
Calibrators. NBS telemetering in-flight calibrator, 342(N)
Cameras. A new bore-hole camera, 546(C)
One-minute photomicrographs, 193(C)
Cancer research. Synchroton for cancer research, 91(C)
Carnotite. Uranium mining in the Colorado Plateau, 372 (C)
Cast iron. Determination of magnesium in cast iron, 71(N)
Cathode-ray tubes. A new high-speed cathode-ray tube, 529(C)
Ceramics. High thermal conductivity ceramics, 531(C)
Source of defect-producing hydrogen in porcelain-enameled steel, 343(N)
Charactron hi-speed printer, 533(C)
Chemical feed. New chemical feed packaged unit, 562(C)
Chemical machining. New glass is precision-machined by chemical process, 58(C)
Chemical warfare. A new gas proof uniform, 533(C)
Chloromycetin for yaws and tropical ulcer, 92(C)
Chromatography. "Blotter" analysis for plastics, 623(C)
Cinema integraph. Wayne University computing machine laboratory, 285(C)
Circuit analysis. Resume of Maxwell's and Kirchhoff's rules for network analysis (Ku), 211
Cohen, I. Bernard: Prejudice against the introduction of lightning rods, 393
Collier Trophy. Helicopter industry awarded Collier trophy, 234(C)
Communications. New portable field telephone, 529(C)
A new theory on the VHF radio wave propagation, 507(N)
Radio's memorable anniversary (Coulson), 287
Suppression of microwaves by zonal screens, 67(N)
Compass. A light weight gyro compass, 234(C)
Computers. An advanced time scale analog computer, 169(F)

A general purpose master control panel, 531(C)
A magnetic tape "memory" for SEAC, 257(N)
Modern computing machines (Hunter), 567
Wayne University computing machine laboratory, 285(C)
Coughing iron lung, 624(C)
Coulson, Thomas: Radio's memorable anniversary, 287
Crop protection. A new type of portable smoke generator, 286(C)

D

De-icing. A successful de-icing system for helicopter rotor blades, 286(C)
Diedrichs, Helene: Discussion of "A proposed musical notation" (Moon), 141
Differential analyser. Wayne University computing machine laboratory, 285(C)
Differential equations. An advanced time scale analog computer, 169(F)
Transient vibration of linear multi-degree-of-freedom systems by the phase-plane method (Ayre), 153
Discharge mechanism. Investigation of resistance and power in experimental lightning discharges (Norinder and Karsten), 225
Doherty, C. S. and R. L. Bisplinghoff: Some studies of the impact of vee wedges on a water surface, 547
Durability of nylon, 69(N)
Dynel drapes feature their own "built-in fire extinguisher," 144(C)
Dynel work clothing, 92(C)

E

Eigenvalue functions. Field expandability in normal modes for a multilayered rectangular or circular wave-guide (Van Bladel), 313
Elasticity. Buckling of continuous beams on elastic supports (Saibel), 563
Election campaign. TV and radio coverage of 1952 election campaign, 283(C)
Electric locomotive. Low-cost electric locomotive, 282(C)
Electrodes. Resistance of plates with small electrodes (McCleskey), 59
Electroluminescence. New source of illumination, 625(C)
Electronics. Axostat, 532(C)
Beam intensification in a high-voltage oscillograph, 174(N)
Charactron hi-speed printer, 533(C)
An explosion-proof test chamber, 286(C)
A general purpose master control panel, 531(C)
Mercury-vapor detectors, 584(C)
Modern computing machines (Hunter), 567
A new high-speed cathode-ray tube, 529(C)
"Robot brain" to probe secrets of oil, 530(C)
Electrostatics. Portable analog field plotter, 285(C)
Emulsions. Generalities concerning "simple" and mixed photographic emulsions as manifested by their characteristic curve (Silberstein), 323
Engineering. Science is not enough (Finch), 201
Engines, Standardization of engines and parts, 234(C)
Escape capsule. A special escape capsule for supersonic planes, 374(C)
Explosion-proof test chamber, 286(C)
Explosives. Nitric acid from air, 191(C)
Ezerman, Elsa Hilger: Discussion of "A proposed musical notation" (Moon), 140

F

Feed. New chemical feed packaged unit, 562(C)
Ferro-resonant flip-flop, 584(C)
Field expandiability in normal modes for a multilayered rectangular or circular wave-guide (Van Bladel), 313
Field plotter. Portable analog field plotter, 285(C)
Film reader for telemetered information, 509(N)
Film. New fixer for photographic film, 366(C)
New synthetic base for photographic film, 284(C)
Finch, J. K.: Science is not enough, 201
Fire prevention. Dynel drapes features their own "built-in fire extinguisher," 144(C)
Ignition of fibrous materials by self-heating, 259(N)
Newly-developed crash fire trucks, 234(C)
Spontaneous ignition of decomposing nitrate film, 172(N)
Flash unit. Dry battery powered repeating flash unit, 94(C)
Flip-flop. The ferro-resonant flip-flop, 584(C)

Float and hull design. Some studies of the impact of vee wedges on a water surface (Bisplinghoff and Doherty), 547
Floor wax. Insecticidal floor wax, 322(C)
Footwear. A new synthetic rubber insulation, 626(C)
Forming. The rotary draw former, 281(C)
Fractional horsepower motors. Smaller, lighter, more versatile FHP motors, 534(C)
Fractional integration. The use of the null-unit function in generalized integration (Smith and Alger), 235
Franklin, Benjamin. Experimental lightning research (Norinder), 471
Lightning protection since Franklin's day (McEachron), 441
Prejudice against the introduction of lightning rods (Cohen), 393
The work of Benjamin Franklin on thunderstorms and the development of the lightning rod (Schonland), 375
The Franklin Institute
Biochemical Research Foundation Notes:
Cramer, Francis B.: A procedure for the preparation of 2-desoxy-D-glucose, 277
Cramer, Francis B. and Gladys E. Woodward: 2-desoxy-D-glucose as an antagonist of glucose in yeast fermentation, 354
Ely, J. O., F. A. Tull and J. A. Hard: The influence of 2-desoxy-D-glucose on the growth of embryonic chicken-heart fibroblasts in tissue culture, 361
McDonald, Ellice and Francis B. Cramer: Cancer research, 351
Ross, M. H. and J. G. Archer: Effect of 2-desoxy-D-glucose on rat liver phosphatases and phosphates, 525
Ross, M. H., J. O. Ely and J. G. Archer: *Abstract of* Alkaline phosphatase activity and pH optima, 183
Stacey, M.: Seminar on the chemistry of nucleic acids, 89
Woodward, G. E.: *Abstract of* Choline oxidase activity in rat liver during 3′-methyl-4-dimethylaminoazobenzene carcinogenesis, 621
By-laws, 194
Committee on Science and the Arts: *Abstract of* Proceedings, December 12, 1951, 81; February 13, 1952, 263; March 12, 1952, 347; April 9, 1952, 513; May 14, 1952, 608
Journal of The Franklin Institute: 76, 178, 264, 350, 514, 612
The Franklin Institute Laboratories for Research and Development: 77
Library: 78, 179, 265, 348, 515, 610
Membership, 73, 178, 263, 347, 513, 608
Museum: 81, 179, 264, 514, 609
Stated meetings: Minutes, December 19, 1951, 72; Janaury 16, 1952, 177; February 20, 1952, 262; March 19, 1952, 346; April 16, 1952, 512; May 21, 1952, 607
Frequency-response. Human response studies, 251(F)
Fungus. A new type fungus control compound, 28(C)

G

Gamma rays. New instrument monitors area gamma radiations, 152(C)
A simplified radioactivity survey instrument, 260(N)
Gaskets that block TV interference, 626(C)
Generalized integration. The use of the null-unit function in generalized integration (Smith and Alger), 235
Gerson, N. C.: The colloquium on auroral physics, 331
Glass. New glass is precision-machined by chemical process, 58(C)
Golomb, Michael and Eugene Usdin: A theory of multidimensional servo systems, 29
Graphical solution. Transient vibration of linear multi-degree-of-freedom systems by the phase-plane method (Ayre), 153
Grinding wheels. Classification of grinding wheels, 167(F)
Guided missiles. Radio system for detecting enemy planes and guided missiles, 190(C)
Gyro compass. A light weight gyro compass, 234(C)

H

Heart. Axostat, 532(C)
Helicopters. Helicopter industry awarded Collier trophy, 234(C)
A one-man helicopter, 546(C)
A successful de-icing system for helicopter rotor blades, 286(C)
Helmholtz equations. Separability conditions for the Laplace and Helmholtz equations (Moon and Spencer), 585
"Hex tent." A six-sided "hex tent," 28(C)
Hilger, Elsa: Discussion of "A proposed musical notation" (Moon), 140

Hindemith, Paul: Discussion of "A proposed musical notation" (Moon), 142
Hinrichsen, Walter: Discussion of "A proposed musical notation" (Moon), 138
History. Radio's memorable anniversary (Coulson), 287
Human response studies, 251(F)
Hunter, G. Truman: Modern computing machines, 567
Hydrodynamics. Some studies of the impact of vee wedges on a water surface (Bisplinghoff and Doherty), 547
The stepped shape film applied to a journal bearing (Archibald), 21
Hydrogen. Source of defect-producing hydrogen in porcelain-enameled steel, 343(N)

I

Ignition of fibrous materials by self-heating, 259(N)
Ignitron rectifier locomotive, 625(C)
Illumination. New source of illumination, 625(C)
Impact. Some studies of the impact of vee wedges on a water surface (Bisplinghoff and Doherty), 547
Insecticides. Insecticidal floor wax, 322(C)
Instruments. Fuse-Din precision thermometer, 374(C)
Hand pyrometer with two scale ranges, 531(C)
Stereo-photogrammetric mapping instrument, 276(C)
Insulation. Mica mat for insulation, 374(C)
A new synthetic rubber insulation, 626(C)
Quartz paper, 626(C)
Integration. The use of the null-unit function in generalized integration (Smith and Alger), 235
Iron lung. Coughing iron lung, 624(C)

J

Jackson, J. E. and V. Bush: Note on "Correction of spherical error of a pendulum," 66
Journal bearings. The stepped shape film applied to a journal bearing (Archibald), 21

K

Karsten, Olof and Harald Norinder: Investigation of resistance and power in experimental lightning discharges, 225
Kirchhoff's rules. Resume of Maxwell's and Kirchhoff's rules for network analysis (Ku), 211
Ku, Y. H.: Resume of Maxwell's and Kirchhoff's rules for network analysis, 211

L

Laplace equations. Separability conditions for the Laplace and Helmholtz equations (Moon and Spencer), 585
Lighting. New source of illumination, 625(C)
Lightning. Certified protection against lightning, 193(C)
Experimental lightning research (Norinder), 471
Investigation of resistance and power in experimental lightning discharges (Norinder and Karsten), 225
Lightning protection since Franklin's day (MeEachron), 441
Prejudice against the introduction of lightning rods (Cohen), 393
The work of Benjamin Franklin on thunderstorms and the development of the lightning rod (Schonland), 375
Lightning rods. Experimental lightning research (Norinder), 471
Lightning protection since Franklin's day (McEachron), 441
Prejudice against the introduction of lightning rods (Cohen), 393
The work of Benjamin Franklin on thunderstorms and the development of the lightning rod (Schonland), 375
Linear systems. A general theory of linear signal transmission systems (Zadeh), 293
Transient vibration of multi-degree-of-freedom systems by the phase-plane method (Ayre), 153
Liquid nitrogen. An automatic liquid nitrogen dispenser, 603(N)
Locomotives. Ignitron rectifier locomotive, 625(C)
Low-cost electric locomotive, 282(C)
Lubrication. The stepped shape film applied to a journal bearing (Archibald), 21

M

Machining. New tungsten machining technique developed, 276(C)
Magnesium. Determination of magnesium in cast iron, 71(N)
Magnetic tape "memory" for SEAC, 257(N)
Malaria. A rapid cure for malaria, 58(C)

Mandeville, C. E. and E. Shapiro: Radiations from radioactive rhodium (105), 145
Mapping. Stereo-photogrammetric mapping instrument, 276(C)
Marconi. Radio's memorable anniversary (Coulson), 287
Maxwell's rules. Resume of Maxwell's and Kirchhoff's rules for network analysis (Ku), 211
McCleskey, Charles S., Jr.: Resistance of plates with small electrodes, 59
McEachron, K. B.: Lightning protection since Franklin's day, 441
Measurement. Hand pyrometer with two scale ranges, 531(C)
Ultrasonic viscosimeter, 625(C)
Medicine. An airborne aspirator, 28(C)
Axostat, 532(C)
Chloromycetin for yaws and tropical ulcer, 92(C)
A device to measure the arterial pulse wave, 144(C)
A rapid cure for malaria, 58(C)
Mercury-vapor detectors, 584(C)
Mesh method. Resume of Maxwell's and Kirchhoff's rules for network analysis (Ku), 211
Metallurgy. Determination of magnesium in cast iron, 71(N)
World metallurgical congress, 93(C)
Mica mat for insulation, 374(C)
Microwaves. Suppression of microwaves by zonal screens, 67(N)
Military engineering. New portable field telephone, 529(C)
Mining. Uranium mining in the Colorado Plateau, 372(C)
Monel. Gaskets that block TV interference, 626(C)
Monitor device. A monitor device for railroad track resistance, 339(F)
Moon, Parry: A proposed musical notation, 125
Moon, Parry and Domina Eberle Spencer: Separability conditions for the Laplace and Helmholtz equations, 585
Motion pictures. Spontaneous ignition of decomposing nitrate film, 172(N)
Motors. Smaller, lighter, more versatile FHP motors, 534(C)
Multidimensional servo systems. A theory of multidimensional servo systems (Golomb and Usdin), 29
Music. A proposed musical notation (Moon), 125

N

NARC. A progress report of the NARC, 605(F)
Navigation. A light weight gyro compass, 234(C)
Network analysis. Resume of Maxwell's and Krichhoff's rules for network analysis (Ku), 211
Network theory. A general theory of linear signal transmission systems (Zadeh), 293
Nickel. Pipe line for nickel ore concentrate, 373(C)
Nitrate film. Spontaneous ignition of decomposing nitrate film, 172(N)
Nitric acid from air, 191(C)
Nitrogen. An automatic liquid nitrogen dispenser, 603(N)
Nitric acid from air, 191(C)
Node method. Resume of Maxwell's and Kirchhoff's rules for network analysis (Ku), 211
Nomenclature. A proposed musical notation (Moon), 125
Radiologistics, 284(C)
Norinder, Harald: Experimental lightning research, 471
Norinder, Harald and Olof Karsten: Investigation of resistance and power in experimental lightning discharges, 225
Notation. A proposed musical notation (Moon), 125
Nuclear physics. Breeder reactor generates power, 281(C)
Radiations from radioactive rhodium (105) (Mandeville and Shapiro), 145
Null-unit function. The use of the null-unit function in generalized integration (Smith and Alger), 235
Nylon. Durability of nylon, 69(N)

O

Odor abatement. A freeze-out apparatus for the collection of air contaminants, 505(F)
Oil. "Robot brain" to probe secrets of oil, 530(C)
Operational calculus. A general theory of linear signal transmission systems (Zadeh), 293
Ordnance. Army ordnance today (Quinton), 535

Ordnance advisory council, 28(C)
Ormandy, Eugene: Discussion of "A proposed musical notation" (Moon), 136
Oscillographs. Beam intensification in a high-voltage oscillograph, 174(N)

P

pH. New line-operated pH indicator and vacuum tube voltmeter, 92(C)
Packing rings. Sealing action of packing rings, 253(F)
Paper. Quartz-paper, 626(C)
Thermal indicators made of paper, 546(C)
Pendulums. Note on "Correction of spherical error of a pendulum" (Bush and Jackson), 66
Permeability. Soil permeability tester, 340(F)
Petroleum. "Robot brain" to probe secrets of oil, 530(C)
Phase-plane method. Transient vibration of linear multi-degree-of-freedom systems by the phase-plane method (Ayre), 153
"Philadelphia" experiment. Experimental lightning research (Norinder), 471
Lightning protection since Franklin's day (McEachron), 441
Prejudice against the introduction of lightning rods (Cohen), 393
The work of Benjamin Franklin on thunderstorms and the development of the lightning rod (Schonland), 375
Photographic sensitivity. Generalities concerning "simple" and mixed photographic emulsions as manifested by their characteristic curve (Silberstein), 323
Photography. Dry battery powered repeating flash unit, 94(C)
A new bore-hole camera, 546(C)
New fixer for photographic film, 366(C)
New synthetic base for photographic film, 284(C)
Photomicrographs. One-minute photomicrographs, 193(C)
Photosensitivity. New glass is precision-machined by chemical process, 58(C)
Picatinny Arsenal. Ordnance advisory council, 28(C)
Pictorial radio (Tuska), 1, 95
Pipes. Pipe line for nickel ore concentrate, 373(C)
Plastic piping, 366(C)
Plastics. "Blotter" analysis for plastics, 623(C)
Durability of nylon, 69(N)
Plastic piping, 366(C)
Plates. Resistance of plates with small electrodes (McCleskey), 59
Porosity. Soil permeability tester, 340(F)
Power. Breeder reactor generates power, 281(C)
Printing. Charactron hi-speed printer, 533(C)
Protective coatings. Source of defect-producing hydrogen in porcelain-enameled steel, 343(N)
Protective systems. Certified protection against lightning, 193(C)
Experimental lightning research (Norinder), 471
Lightning protection since Franklin's day (McEachron), 441
Prejudice against the introduction of lightning rods (Cohen), 393
Radio system for detecting enemy planes and guided missiles, 190(C)
The work of Benjamin Franklin on thunderstorms and the development of the lightning rod (Schonland), 375
Pumps. "Vibro pump," 530(C)
Pyranol. New type askarel, 623(C)
Pyrometer. Hand pyrometer with two scale ranges, 531(C)

Q

Quantum theory of sensitivity. Generalities concerning "simple" and mixed photographic emulsions as manifested by their characteristic curve (Silberstein), 323
Quartz paper, 626(C)
Quinton, A. B.: Army ordnance today, 535

R

Radar. Pictorial radio (Tuska), 1, 95
Radio. A new theory on VHF radio wave propagation, 507(N)
Pictorial radio (Tuska), 1, 95
Radio system for detecting enemy planes and guided missiles, 190(C)
Radio's memorable anniversary (Coulson), 287
Solar radio noise bursts, 601(N)
TV and radio coverage of 1952 election campaign, 283(C)
Radioactivity. New instrument monitors area gamma radiations, 152(C)
Radiations from radioactive rhodium (105) (Mandeville and Shapiro), 145

Radioactivity of archeological specimens, 532(C)
A simplified radioactivity survey instrument, 260(N)
Specifically labelled radioactive sugars, 508(N)
Radiography. Industrial x-ray films, 622(C)
Radiologistics, 284(C)
Radiology. Synchroton for cancer research, 91(C)
Railroads. Ignitron rectifier locomotive, 625(C)
Low-cost electric locomotive, 282(C)
A monitor device for railroad track resistance, 339(F)
Recording systems. Charactron hi-speed printer, 533(C)
Rectifiers. Selenium rectifiers, 322(C)
Research. Ordnance advisory council, 28(C)
Resistance of plates with small electrodes (McCleskey), 59
Resistors, 532(C)
Respirator. Coughing iron lung, 624(C)
Rhodium. Radiations from radioactive rhodium (105) (Mandeville and Shapiro), 145
Rockets. Another high altitude rocket, 531(C)
Rotary draw former, 281(C)
Rubber. A new synthetic rubber insulation, 626(C)

S

SEAC. A magnetic tape "memory" for SEAC, 257(N)
Safety engineering. Mercury-vapor detectors, 584(C)
A monitor device for railroad track resistance, 339(F)
A new gas proof uniform, 533(C)
New instrument monitors area gamma radiations, 152(C)
Saibel, Edward: Buckling of continuous beams on elastic supports, 563
Salt dampening problems solved, 546(C)
Schonland, B. F. J.: The work of Benjamin Franklin on thunderstorms and the development of the lightning rod, 375
Science is not enough (Finch), 201
Sealing action of packing rings, 253(F)
Selenium rectifiers, 322(C)
Self-heating. Ignition of fibrous materials by self-heating, 259(N)
Separability conditions for the Laplace and Helmholtz equations (Moon and Spencer), 585
Service testing. Durability of nylon, 69(N)
Servomechanisms. A theory of multidimensional servo systems (Golomb and Usdin), 29
Shapiro, E. and C. E. Mandeville: Radiations from radioactive rhodium (105), 145
Signal transmission. A general theory of linear signal transmission systems (Zadeh), 293
Silberstein, Ludwik: Generalities concerning "simple" and mixed photographic emulsions as manifested by their characteristic curve, 323
Smith, J. J. and P. L. Alger: The use of the null-unit function in generalized integration, 235
Smoke. A new type of portable smoke generator, 286(C)
Soil permeability tester, 340(F)
Solar radio noise bursts, 601(N)
Spencer, Domina Eberle and Parry Moon: Separability conditions for the Laplace and Helmholtz equations, 585
Spherical error. Note on "Correction of spherical error of a pendulum" (Bush and Jackson), 66
Spinning machines. High-accuracy drive for spinning synthetic yarn, 152(C)
Spontaneous ignition of decomposing nitrate film, 172(N)
Standardization of engines and parts, 234(C)
Steel. Source of defect-producing hydrogen in porcelain-enameled steel, 343(N)
Stereo-photogrammetric mapping instrument, 276(C)
Structural analysis. Buckling of continuous beams on elastic supports (Saibel), 563
Sugar. Specifically labelled radioactive sugars, 508(N)
Supersonic planes. A special escape capsule for supersonic planes, 374(C)
Survey instruments. A simplified radioactivity survey instrument, 260(N)
Synchroton for cancer research, 91(C)

T

Technical information. Ask Astia, 276(C)
Technology. Science is not enough (Finch), 201
Telemetering. Film reader for telemetered information, 509(N)

NBS telemetering in flight calibrator, 342(N)
Telephony. New portable field telephone, 529(C)
Television. Gaskets that block TV interference, 626(C)
Trans-Atlantic television, 366(C)
TV and radio coverage of 1952 election campaign, 283(C)
Underwater television cameras, 192(C)
Tents. A six-sided "hex tent," 28(C)
Textiles. Dynel drapes feature their own "built-in fire extinguisher," 144(C)
Dynel work clothing, 92(C)
High-accuracy drive for spinning synthetic yarn, 152(C)
Thermometers. Fuse-Din precision thermometer, 374(C)
Thermal indicators made of paper, 546(C)
Thickness meter. Resistance of plates with small electrodes (McCleskey), 59
Thunderstorms. Experimental lightning research (Norinder), 471
Lightning protection since Franklin's day (McEachron), 441
Prejudice against the introduction of lightning rods (Cohen), 393
The work of Benjamin Franklin on thunderstorms and the development of the lightning rod (Schonland), 375
Tracers. Specifically labelled radioactive sugars, 508(N)
Trans-Atlantic television, 366(C)
Transient vibration of linear multi-degree-of-freedom systems by the phase-plane method (Ayre), 153
Transportation. Ocean shipment of loaded trailers, 562(C)
Uranium mining in the Colorado Plateau, 372 (C)
Tripod. Lightweight tripod for artillery, 562(C)
Trucks. Newly-developed crash fire truck, 234(C)
Uranium mining in the Colorado Plateau, 372(C)
Tungsten. New tungsten machining technique developed, 276(C)
Tuska, C. D.: Pictorial radio, 1, 95

U

Ultrasonic viscosimeter, 625(C)
Underwater television cameras, 192(C)
Upper atmosphere. The colloquium on auroral physics (Gerson), 331
Uranium. Uranium mining in the Colorado Plateau, 372(C)
Usdin, Eugene and Michael Golomb: A theory of multidimensional servo systems, 29

V

Vacuum systems. An automatic liquid nitrogen dispenser, 603(N)
Vacuum tubes. New line-operated pH indicator and vacuum tube voltmeter, 92(C)
Van Bladel, Jean: Field expandability in normal modes for a multilayered rectangular or circular wave-guide, 313
Vee wedges. Some studies of the impact of vee wedges on a water surface (Bisplinghoff and Doherty), 547
Vibration. "Vibro pump," 530(C)
Viscosity. Ultrasonic viscosimeter, 625(C)
Voltmeter. New line-operated pH indicator and vacuum tube voltmeter, 92(C)

W

Warning systems. Radio system for detecting enemy planes and guided missiles, 190(C)
Water. Some studies of the impact of vee wedges on a water surface (Bisplinghoff and Doherty), 547
Wave propagation. A new theory on VHF radio wave propagation, 507(N)
Wave-guides. Field expandability in normal modes for a multilayered rectangular or circular wave-guide (Van Bladel), 313
Wave - suppression. Suppression of microwaves by zonal screens, 67(N)
World Metallurgical Congress, 93(C)

X

X-rays. Industrial x-ray films, 622(C)
Synchroton for cancer research, 91(C)

Y

Yarn. High accuracy drive for spinning synthetic yarn, 152(C)

Z

Zadeh, L. A.: A general theory of linear signal transmission systems, 293
Zonal screens. Suppression of microwaves by zonal screens, 67(N)

Journal
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form, it is a one-channel set with a five-inch screen. In another approach, transistors were introduced in part of the circuits of a standard television receiver. Transistors were also employed in circuits of industrial television equipment and the "Walkie-Lookie" portable TV camera equipment to point up savings in weight, size, and power consumption.

In the radio field, all-transistor AM, FM, and automobile radio receivers were demonstrated. These exploratory applications already point the way to new compactness and much lower battery drain than receivers require today. The automobile radio operating with transistors directly off the 6-volt battery of a car eliminates the relatively costly high-voltage power supply common to present-day automobile sets and enables more than a ten-fold reduction in battery drain.

Also demonstrated was a small portable 45-rpm phonograph with a self-contained transistor amplifier and battery supply. Another transistor amplifier circuit was displayed in a portable public address system with self-contained battery supply.

A transformerless transistor power amplifier, an entirely new kind of circuit that may have considerable significance in the design of radio and television receivers, was displayed and operated. The experimental power amplifier circuit consists of nothing but four transistors mounted in a small tube socket. For many audio applications it appears that such a device, which harnesses a unique transistor characteristic known as complementary symmetry, can do the job that now requires two or more tubes, an output transformer, a phase inverter, and other components to amplify audio signals into a loudspeaker.

Two transistorized sections of modern electronic computers, a counter and an adder, were operated to show how transistors can do at least as good a job as tubes in such circuits and at the same time offer great advantages in size, reliability and power consumption.

Two examples of how transistors might be practical in musical devices were also displayed. One was an eight-note transistor "piano" the oscillations from which were picked up and "played" by a standard radio receiver. The other was an electronic ukelele, working on the same principles as an electric guitar, except that the compactness and low-power requirements of transistors enable the amplifier and loudspeaker to be self-contained within the instrument itself.

Dr. Engstrom explained that the equipment made use of the ten types of RCA developmental and experimental transistors, three of the point-contact variety and seven of the junction transistor family. The three point-contact types and one of the junction types will be offered on a limited sampling basis for engineering advanced development to industry representatives who attended the demonstration. The other six junction types are still under research and are classed as experimental, he said.

Dr. Engstrom emphasized that transistors are not interchangeable with present tubes in the sense that a tube from an existing instrument can be pulled out and a transistor substituted. New circuitry must be developed, he explained, in order to take full advantage of the special characteristics of transistors and, to fully realize space and weight saving possibilities which they open up, new components will also have to be designed.

INDEX TO VOLUME 254

July to December, 1952

References with (N) are Notes from the National Bureau of Standards, those with (F) are Notes from The Franklin Institute Laboratories, and those with (C) are Current Topics.

A

Adhesion. Evaporation technique is key to adhesion studies, 350(C)

Aerial photography. Wide-angle photographic lens, 261(C)

Agriculture. The earth and the fulness thereof (Bear), 43

Alignment charts. Some properties of hyperbolic coordinate systems (Burrows), 127

Aluminum. New aluminum-plating process, 65(N)

Amplifiers. A ferroelectric amplifier (Urkowitz), 517

High power audio amplifier, 498(C)

Analog computers. New unit provides simulation of backlash, dead-zone and limit-stops for any computer, 265(C)

A universal unit for the electrical differential analyzer (Tomovich), 143

Analysis. Analysis of partly symmetrical machines by means of unitary transformation (Shen and Broadbent), 473

Annunciator. New type data recorder and annunciator, 442(C)

Antibiotics. Search for new antibiotics, 191(C)

Architecture. Louvred windows, 226(C)

Asphalt. Multiwall paper bags for packaging asphalt, 266(C)

Scintillation counter for asphalt, 486(C)

Astronomy. Important new sun data expected soon, 263(C)

Atmospherics. Climate control through ionization (Martin), 267

High-altitude research facilities available, 351(C)

Weather prediction by "radioactive" pen, 348(C)

Atomic energy. Atomic instruments used in oil exploration, 558(C)

Atomic-powered industrial trucks, 556(C)

Reactor-produced polonium now available for purchase, 445(C)

Automatic plotting of digital solutions, 350(C)

Aviation. Fluorescent floodlights, 103(C)

Improvement of acrylic aircraft glazing by stretch-forming, 326(N)

A new collision warning radar, 196(C)

New steam catapult for aircraft carrier, 448(C)

A new type steam catapult, 104(C)

Ship borne oxygen generating plants, 351(C)

World's most powerful jet engine, 446(C)

B

B-H curve. A B-H curve tracer, 61(F)

Beam analysis. Application of Maclaurin series to the analysis of beams in bending (Hetényi), 369

Vibrations of a continuous beam under a constant moving force (Saibel and Lee), 499

Bear, Firman E.: The earth and the fulness thereof, 43

Bearings. Corrosion of in-storage ball bearings, 264(C)

Oil flow in plain journal bearings, 64(N)

Binding posts. Watertight binding posts, 195(C)

Bio-engineering. New "plastic kidney" 101(C)

Bio-mechanics, a new approach to music education (Polnauer), 297

Blind, aids for. Talking books for the blind, 420(N)

Blood. Viscometer used in blood studies, 194(C)

Book reviews

Alter, Dinsmore and Clarence H. Cleminshaw: Pictorial astronomy, 548

Annual review of nuclear science, Vol. I, 1952, 341

Ashby, W. Ross: Design for a brain, 547

Ayres, W. L., Cleota G. Fry and H. F. L. Jonah: General college mathematics, 552

Barger, E. L., W. M. Carleton, E. G.

McKibben and Roy Bainer: Tractors and their power units, 185
Barth, Thom F. W.: Theoretical petrology, 91
Begeman, Myron L.: Manufacturing processes, 97
Bell, R. P.: Acids and bases—their quantitative behaviour, 551
Bleuler, Ernst and George J. Goldsmith: Experimental nucleonics, 96
Bondi, H.: Cosmology, 254
Bonner, John Tyler: Morphogeneis: an essay on development, 432
Breneman, John W.: Strength of materials, 257
Bridgman, P. W.: The nature of some of our physical concepts, 339
Brittain, Robert: Let there be bread, 90
Burhop, E. H. S.: The auger effect and other radiationless transitions, 341
Caverly, Don: Primer of electronics and radiant energy, 96
Champion, F. A.: Corrosion testing procedures, 430
Christie, Dan Edwin: Intermediate college mechanics, 96
Clauser, H. R.: Practical radiography for industry, 186
Cohen, Karl: The theory of isotope separation, 89
Cole, E. B.: Theory of vibrations for engineers, 434
Conant, James Bryant and Albert Harold Blatt: The chemistry of organic compounds, 97
Conn, G. K. T. and F. J. Bradshaw, ed.: Polarized light in metallography, 434
Cooper, Gordon: Dead cities and forgotten tribes, 187
d'Abro, A.: The rise of the new physics, 340
Damerell, V. R.: A course in college chemistry, 186
Dean, Reginald S.: Electrolytic manganese and its alloys, 95
Delmonte, John: Plastics molding, 340
Deming, H. G.: General chemistry, 187
Den Hartog, J. P.: Advanced strength of materials, 431
Development of some man-made fibres, 187
Draper, C. S., W. McKay and S. Lees: Instrument engineering, Vol. I, 547
Duncan, W. J.: The principles of the control and stability of aircraft, 435
Dunn, C. H. and H. J. Parker: Electrical measurements manual, 438
du Pont. The autobiography of an American enterprise, 256
DuPouy, Gaston: Elements d'optique electronique, 88
Erickson, W. H. and N. H. Bryant: Electrical engineering: theory and practice, 342
Estermann, T.: Introduction to modern prime number theory, 94
Feinberg, R.: Introduction to electronic circuits, 88
Fitzgerald, A. E. and Charles Kingsley, Jr.: Electric machinery, an integrated treatment of a-c. and d-c. machines, 180
Foerster, Heinz von, ed.: Cybernetics. Transactions of the Sixth, Seventh and Eighth Conferences, 182
Fox, Cyril S.: Water: a study of its properties, its constitution, its circulation on the earth and its utilization, 89
Hald, A.: Statistical tables and formulas, 335
Statistical theory with engineering applications, 335
Hamilton, Leicester F. and Stephen G. Simpson: Quantitative chemical analysis, 552
Handbook of engineering fundamentals, 185
Hansen, H. M. and Paul F. Chenea: Mechanics of vibration, 182
Harang, L.: The aurorae, 87
Harkins, W. D.: Physical chemistry of surface films, 176
Hilbert, David and S. Cohn-Vossen: Geometry and the imagination, 341
Hildebrand, Joel H. and Richard E. Powell: Principles of chemistry, 257
Hoerr, Normand L. and others, ed.: Blakiston's illustrated pocket medical dictionary, 343
Hyndman, Olan R.: The origin of life and the evolution of living things, 339
Ireson, William Grant: Introduction to factory planning, 92
Ives, Howard Chapin and Philip Kissam: Highway curves, 437
James, Henry Duvall and Lewis Edwin Markle: Controllers for electric motors, 257
Judd, Deane B.: Color in business, science and industry, 184
Kempthorne, Oscar: The design and analysis of experiments, 86

Kerr, Donald E., ed.: Propagation of short radio waves, 87
Keyser, Cassius Jackson: The rational and superrational, 546
Kirshenbaum, Isidor: Physical properties and analysis of heavy water, 181
Kober, H.: Dictionary of conformal representations, 437
Koller, Lewis R.: Ultraviolet radiation, 338
Korn, Granino A. and Theresa M. Korn: Electronic analog computers, 252
Körtum, G. and J. O'M. Bockris: Textbook of electrochemistry, Vol. II, 90
Kuiper, Gerard P., ed.: The atmospheres of the earth and planets, 178
Latimer, Wendell M.: Oxidation potentials, 439
Leighton, Walter: An introduction to the theory of differential equations, 255
Lovell, Bernard and J. A. Clegg: Radio astronomy, 551
Marcus, A.: Physics for modern times, 438
Marin, Joseph: Engineering materials, 86
Markus, John and Vin Zeluff: Electronics for communication engineers, 255
Marshall, Roy K.: Sun, moon, and planets, 551
Mason, Brian: Principles of geochemistry, 91
Mavor, James Watt: General biology, 97
Laboratory exercises in general biology, 97
McCormick, Frank J.: Strength of materials, 342
McLachlan, N. W.: Theory of vibrations, 550
Meriam, J. L.: Mechanics. Part I, Statics & Part II, Dynamics, 430
Moses, Ben D. and Kenneth R. Frost: Farm power, 185
Mott, N. F.; Elements of wave mechanics, 179
Neugebauer, O.: The exact sciences in antiquity, 433
Nickson, James J., ed.: Symposium on radiobiology, 336
Observer's handbook, 438
Olson, Harry F.: Musical engineering, 183
Palmer, C. I. and Claude E. Stout: Practical calculus, 343
Pare, E. G., R. O. Loving and I. L. Hill: Descriptive geometry, 552
Peattie, Rod and Lisa: The city, 94
Pledge, H. T.: Science since 1500, 93
Proceedings of the London Conference on Optical Instruments—1950, 178
Proceedings of a second symposium on large scale digital calculating machinery, 93
Richardson, E. G.: Ultrasonic physics, 550
Riedman, Sarah: Water for people, 94
Rothschild, Miriam and Theresa Clay: Fleas, flukes and cuckoos, 552
Ryan, Cornelius, ed.: Across the space frontier, 436
Salvadori, Mario G. and Melvin L. Baron: Numerical methods in engineering, 435
Sanitation for the food preservation industires, 185
Saylor, Henry H.: Dictionary of architecture, 257
Schelkunoff, Sergei A.: Advanced antenna theory, 337
Schelkunoff, Sergei A. and Harold T. Friis: Antennas: theory and practice, 181
Seely, Fred B. and Newton E. Ensign: Analytical mechanics for engineers, 185
Shockley, W., ed.: Imperfections in nearly perfect crystals, 253
Simon, F. E., N. Kurti, J. F. Allen and K. Mendelssohn: Low temperature physics, 432
Simonds, H. R., A. J. Weith and William Schack: Extrusion of plastics, rubber, and metals, 256
Slater, John C.: Quantum theory of matter, 95
Sloane, Alvin: Mechanics of materials, 549
Solberg, Harry L., Orville C. Cromer and Albert R. Spalding: Elementary heat power, 186
Spear, Mary Eleanor: Charting statistics, 342
Spreadbury, F. G.: Fractional h.-p electric motors, 436
Stephenson, Reginald J.: Mechanics and properties of matter, 180
Stoll, Robert R.: Linear algebra and matrix theory, 549
Thring, M. W.: The science of flames and furnaces, 439
Trinks, W.: Industrial furnaces, Vol. 1, 186
True, Webster Prentiss, ed.: Panorama of science, 1952, 339
Tustin, A., ed.: Automatic and manual control, 254
Urey, Harold, C.: The planets, their origin and development, 177

Vade-mecum, 96
Vail, James G.: Soluble silicates, Vol. 1, 545
Van Name, F. W., Jr.: Modern physics, 545
Van Voorhis and Haskins: Basic mathematics for engineering and science, 335
von Laue, M.: Theory of superconductivity, 252
Waggaman, William H.: Phosphoric acid, phosphates and phosphatic fertilizers, 438
Ward, Robert Page: Introduction to electrical engineering, 97
Weber, Robert L., Marsh W. White and Kenneth V. Manning: College physics, 186
Weinstock, Robert: Calculus of variations with applications to physics and engineering, 337
Witcoff, Harold: The phosphatides, 92
Wulff, John, Howard F. Taylor and Amos J. Shaler: Metallurgy for engineers, 437
Wyler, Rose: Planet earth, 94
Yates, Robert C.: Differential equations, 257
Young, Vincent W.: Basic engineering thermodynamics, 255
Zuidema, H. H.: Performance of lubricating oils, 180
Brakes. Hysteresis brake, 498(C)
Broadbent, H. N. G. and D. W. C. Shen: Analysis of partly symmetrical machines by means of unitary transformation, 473
Burrows, W. H.: Some properties of hyperbolic coordinate systems, 127

C

Cabinets. Sterilshield cabinets, 196(C)
Calibration. High-frequency calibration of magnetic materials, 534(N)
Casting. Automatic pouring of molten metals, 414(C)
Catalyst burns odors, saves fuel, 164(C)
Catapult. New steam catapult for aircraft carrier, 448(C)
A new type steam catapult, 104(C)
Centennial of engineering, 188(C)
Circuit analysis. Analysis of partly symmetrical machines by means of unitary transformation (Shen and Broadbent), 473
Circuit theory. Network analysis by least power theorems (Ryder), 47
Climate control through ionization (Martin), 267
Cloud seeding. Man-made weather, 99(C)
Rainfall patterns, 445(C)
Communications. Lunar reflection of UHF communications, 70(N)
A new kind of propagation at very high frequencies, 417(N)
New relays for dial telephones, 192(C)
Unbalances of untransposed overhead lines (Gross), 473
Very-high-frequency transistors, 258(C)
Compensation of feedback-control systems subject to saturation (Newton), 281, 391
Compressible fluids. On the invariants in the turbulence in compressible viscous fluids (Krzywoblocki), 317
Computers. Computer manufacturer offers engineering service, 349(C)
New electronic brain, 443(C)
New unit provides simulation of backlash, dead-zone and limit-stops for any computer, 265(C)
A universal unit for the electrical differential analyzer (Tomovich), 143
Concrete. Entrained air indicator, 142(C)
Conklin, G. L., C. E. Mandeville, E. Shapiro, R. I. Mendenhall and E. R. Zucker: Radiations from Zr^{97} and Nb^{97}, 381
Conservation. The earth and the fulness thereof (Bear), 43
Constant-level device for liquids, 167(N)
Coordinate systems. Separability in a class of coordinate systems (Moon and Spencer), 227
Some properties of hyperbolic coordinate systems (Burrows), 127
Corrosion. Corrosion of in-storage ball bearings, 265(C)
Coulson, Thomas: Franklin's wit and wisdom, 105
Counters. A circuit for the limitation of discharge in G-M counters (Porter and Ramsey), 153
Creped parchment paper, 196(C)
Crystal -growing technique, 168(N)
Curve tracer. A B-H curve tracer, 61(F)

D

Data recorder. New type data recorder and annunciator, 442(C)
Deformation. Application of Maclaurin series to the analysis of beams in bending (Hetényi), 369
Die casting. Automatic pouring of molten metals, 414(C)

Diesel engines. A new type of Diesel locomotive, 104(C)
Differential analyzer. New electronic brain, 443(C)
A universal unit for the electrical differential analyzer (Tomovich), 143
Differential equations. Separability in a class of coordinate systems (Moon and Spencer), 227
Stationary solutions of certain nonlinear differential equations (Minorsky), 21
du Pont. 150th anniversary of du Pont Company, 99(C)
Dynamics. Computer manufacturer offers engineering service, 349(C)

E

Elasticity. Application of Maclaurin series to the analysis of beams in bending (Hetényi), 369
Electric circuits. Network analysis by least power theorems (Ryder), 47
Electricity Proposed electrical code changes, 440(C)
Electrodeposition. New aluminum-plating process, 65(N)
Electromagnetic pump for moving molten metals, 264(C)
Electromechanics. A universal unit for the electrical differential analyzer (Tomovich), 143
Electron microscope. Measuring particles in the range 0.005 to 10 microns, 531(F)
Electronics. Electronic motion analysis, 347(C)
Electronic "potting" materials, 103(C)
A ferroelectric amplifier (Urkowitz), 517
High-frequency calibration of magnetic materials, 534(N)
NBS pre-cured tape resistor, 245(N)
New electronic brain, 443(C)
Pipeline-network analyzer, 195(C)
Transistors in wide range of experimental applications, 560(C)
Viscometer used in blood studies, 194(C)
Electroplating. Evaporation technique is key to adhesion studies, 350(C)
Electrostatics. Hazards from static electricity, 243(N)
Engineering. Computer manufacturer offers engineering service, 349(C)
Entrained air indicator, 142(C)
Escalators. Fire tests of escalator shutters, 330(N)
Evaporation. Evaporation technique is key to adhesion studies, 350(C)

F

Feedback-control systems. Compensation of feedback-control systems subject to saturation (Newton), 281, 391
A circuit for the limitation of discharge in G-M counters (Porter and Ramsey), 153
Ferroelectric amplifier (Urkowitz), 517
Ferromagnetism. Permanent magnetic materials, 165(F)
Filter theory. Compensation of feedback-control systems subject to saturation (Newton), 281, 391
Fire prevention. Fire tests of escalator shutters, 330(N)
Fireproof plastic for interior decorating, 443(C)
Proposed electrical code changes, 440(C)
Flexure. Application of Maclaurin series to the analysis of beams in bending (Hetényi), 369
Flooring. Hazards from static electricity, 243(N)
Flowmeter. New magnetic flowmeter, 188(C)
Fluid mechanics. On the invariants in the turbulence in compressible fluids (Krzywoblocki), 317
Fluorescent floodlights, 103(C)
Fluorescent street light, 194(C)
Fluorescent tube disposal, 448(C)
Flying saucers, 352(C)
Framing anchors as joist hangers, 352(C)
Franklin, Benjamin: Franklin's wit and wisdom (Coulson), 105
The Franklin Institute
Annual report of the Board of Managers for the year 1951, 72
Biochemical Research Foundation Notes:
Day, E. D. and W. A. Mosher: *Abstract of* An improved colorimetric method for the quantitative estimation of thymine, 423
Ely, J. O. and M. H. Ross: Reduction of the number of cells of the rat liver by a protein-free diet, 189
Limperos, G.: *Abstract of* Alteration of the mortality of Roentgen irradiated mice by chemical means, 98
Naimark, George M. and William A. Mosher: Pepsin inactivation by inert gases, 344

Woodward, Gladys E.: 2-desoxy-D-glucose as an inhibitor in the aerobic glucose metabolism of yeast, 553
Woodward, Gladys E. and Francis B. Cramer: 2-desoxy-D-glucose as an inhibitor of anaerobic glycolysis in tumor tissue, 259
Committee on Science and the Arts: *Abstract of* Proceedings, April 9, 1952, 82; June 11, 1952, 82; June 11, 1952, 171; November 12, 1952, 540
Day, Charles, Lecture: Charles Day—symbol of American industrial genius (Taylor), 1
Journal of The Franklin Institute, 85, 175, 248, 334, 426, 539
Library, 83, 171, 249, 332, 427, 542
Medal Day Proceedings, 449
Membership, 82, 332, 429, 540
Museum, 81, 174, 248, 331, 426, 541
Stated meetings: Minutes, October 15, 1952, 424; November 19, 1952, 539
Fuel. Catalyst burns odors, saves fuel, 164(C)

G

Gamma-rays. Penetration of gamma-rays, 67(N)
Gears. Newly designed three-piece gear motor, 441(C)
Geiger counters. A circuit for the limitation of discharge in G-M counters (Porter and Ramsey), 153
Gel-time meter, 557(C)
Generators. Thermoelectric generators, 415(F)
Geology. Atomic instruments used in oil exploration, 558(C)
Glazing. Improvement of acrylic aircraft glazing by stretch-forming, 326(N)
Graphical methods. Some properties of hyperbolic coordinate systems (Burrows), 127
Gravity mining of nickel ores, 152(C)
Gross, Eric T. B.: Unbalances of untransposed overhead lines, 473
Guided missiles. Automatic plotting of digital solutions, 350(C)

H

Heavy water. Isotopic method determines water content, 537(N)
Heténi, M.: Application of Maclaurin series to the analysis of beams in bending, 369
High-altitude research facilities available, 351(C)
History. 150th anniverary of du Pont Company, 99
Franklin's wit and wisdom (Coulson), 105
Some events in the early history of the oscillating magnetron (White), 197
Horizontometer. An instrument for measuring horizontal deviation, 266(C)
Hydrazine. Army rocket research fights TB. (C)
Hysterisis brake, 498(C)

I

Illumination. Fluorescent floodlights, 103(C)
Fluorescent street light, 194(C)
Inspection. Pocket magnifier, 498(C)
Instruments. A circuit for the limitation of discharge in G-M counters (Porter and Ramsey), 153
Constant-level device for liquids, 167(N)
D-c. current-measuring reactor, 559(C)
Electrically lighted industrial magnifier, 349(C)
Entrained air indicator, 142(C)
Gel-time meter, 557(C)
Increased sensitivity of ground-station receiving equipment, 448(C)
Industrial stereomicroscope, 351(C)
An instrument for measuring horizontal deviation, 266(C)
Mercury jet switch, 448(C)
New device for measuring moisture content of commodities, 102(C)
New liquid-level control, 262(C)
New magnetic flowmeter, 188(C)
New miniature test probes, 170(N)
Pocket magnifier, 498(C)
A simple micromanipulator, 169(N)
Insulation. Measurement of insulating quality of textiles, 264(C)
Interior decorating. Fireproof plastic for interior decorating, 443(C)
Ion generation. Climate control through ionization (Martin), 267
Ionization. Flying saucers, 352(C)
A new kind of propagation at very high frequencies, 417(N)
Isotopes. Isotopic method determines water content, 537(N)
Reactor-produced polonium now available for purchase, 445(C)
U. S. isotope distribution, 152(C)

J

Jackson, Joseph Gray: Records of research, 355
Jet engines. World's most powerful jet engine, 446(C)
Joists. Framing anchors as joist hangers, 352(C)
Journal bearings. Oil flow in plain journal bearings, 64(N)

K

Krzywoblocki, M. Z. E.: On the invariants in the turbulence in compressible viscous fluids, 317

L

Lee, Winston F. Z. and Edward Saibel: Vibrations of a continuous beam under a constant moving force, 499
Least power theorems. Network analysis by least power theorems (Ryder), 47
Lenses. Lens attachment eliminates retouching, 102(C)
Wide-angle photographic lens, 261(C)
Lighting. Fluorescent floodlights, 103(C)
Fluorescent street light, 194(C)
Lightning rods. Personal lightning rods?, 390(C)
Liquids. Constant-level device for liquids, 167(N)
New liquid-level control, 262(C)
Locomotives. A new type of Diesel locomotive, 104(C)
Louvred windows, 226(C)
Lunar reflection of the UHF communications, 70(N)

M

Maclaurin series. Application of Maclaurin series to the analysis of beams in bending (Hetényi), 369
Magnetic materials. High-frequency calibration of magnetic materials, 534(N)
A new magnetic material, 263(C)
Permanent magnetic materials, 165(F)
Magnetism. A B-H curve tracer, 61(F)
Magnifier. Electrically lighted industrial magnifier, 349(C)
Pocket magnifier, 498(C)
Magnitron. Some events in the early history of the oscillating magnetron (White), 197
Management. Charles Day—symbol of American industrial genius (Taylor), 1
Mandeville, C. E., E. Shapiro, R. I. Mendenhall, E. R. Zucker and G. L. Conklin: Radiations from Zr^{97} and Nb^{97}, 381
Martin, Thomas L., Jr.: Climate control through ionization, 267
Materials handling. Atomic-powered industrial trucks, 556(C)
Materials testing. A yield criterion for ductile metals based upon atomic structure (Shaw), 109
Measurement. D-c. current-measuring reactor, 559(C)
Measurement of insulating quality of textiles, 264(C)
Medicine. Hen's egg playing important role in fight against rabies, 353(C)
New "plastic kidney," 101(C)
Search for new antibiotics, 191(C)
Surgery in your living room, 345(C)
Viscometer used in blood studies, 194(C)
Mendenhall, R. I., C. E. Mandeville, E. Shapiro, E. R. Zucker and G. L. Conklin: Radiations from Zr^{97} and Nb^{97}, 381
Mercury. Mercury jet switch, 448(C)
Metallurgy. Automatic pouring of molten metals, 414(C)
Electromagnetic pump for moving molten metals, 264(C)
A yield criterion for ductile metals based upon atomic structure (Shaw), 109
Microhardness. A yield criterion for ductile metals based upon atomic structure (Shaw), 109
Micromanipulator. A simple micromanipulator, 169(N)
Military engineering. Plastic ships and airplanes, 350(C)
The truck that goes anywhere, 261(C)
Water purification unit, 557(C)
Mining. Gravity mining of nickel ores, 152(C)
Minorsky, N.: Stationary solutions of certain nonlinear differential equations, 21
Moisture content. New device for measuring moisture content of commodities, 102(C)
Moon, Parry and Domina Eberle Spencer: Separability in a class of coordinate systems, 227
Motion analysis. Electronic motion analysis, 347(C)
Motors. Analysis of partly symmetrical machines by means of unitary transformation (Shen and Broadbent), 473

Newly designed three-piece gear motor, 441(C)
Music. Bio-mechanics, a new approach to music education (Polnauer), 297

N

Network analysis by least power theorems (Ryder), 47
Newton, George C., Jr.: Compensation of feedback-control systems subject to saturation, 281, 391
Nickel. Gravity mining of nickel ores, 152(C)
Niobium. Radiations from Zr^{97} and Nb^{97} Mandeville, Shapiro, Mendenhall, Zucker and Conklin), 381
Nomography. Some properties of hyperbolic coordinate systems (Burrows), 127
Nonlinear oscillations. Stationary solutions of certain nonlinear differential equations (Minorsky), 21
Nonlinear vibration absorber. Synthesis of a nonlinear dynamic vibration absorber (Roberson), 205
Nuclear physics. A new tube-coating method, 560(C)
Nutrition. The earth and the fulness thereof (Bear), 43

O

Odors. Catalyst burns odors, saves fuel, 164(C)
Oil. Atomic instruments used in oil exploration, 558(C)
Oil flow in plain journal bearings, 64(N)
Optics. Electrically lighted industrial magnifier, 349(C)
Industrial stereomicroscope, 351(C)
A new tube-coating method, 560(C)
Oscillating magnetron. Some events in the early history of the oscillating magnetron (White), 197
Oscillations. Stationary solutions of certain nonlinear differential equations (Minorsky), 21
Oxygen. Ship borne oxygen generating plants, 351(C)

P

Packaging. Multiwall paper bags for packaging asphalt, 266(C)
Paint. New type paint remover, 444(C)
A portable hot plastic spray unit, 258(C)
Paper. Multiwall paper bags for packaging asphalt, 266(C)
Particle size. Measuring particles in the range 0.005 to 10 microns, 531(F)
Patents. Records of research (Jackson), 355
Pendulums. Stationary solutions of certain nonlinear differential equations (Minorsky), 21
Penetration of gamma-rays, 67(N)
Permanent magnetic materials, 165(F)
Photographic emulsions. Properties of an exponential size-frequency distribution of finite extent (Silberstein), 221
Photography. Lens attachment eliminates retouching, 102(C)
Wide-angle photographic lens, 261(C)
Pipeline-network analyzer, 195(C)
Pipes. A plastic patch for pipes, 196(C)
Plastics. Electronic "potting" materials, 103(C)
Fireproof plastic for interior decorating, 443(C)
Improvement of acrylic aircraft glazing by stretch-forming, 326(N)
New "plastic kidney," 101(C)
Plastic patch for pipes, 196(C)
Plastic ships and airplanes, 350(C)
A portable hot plastic spray unit, 258(C)
Plating. New aluminum-plating process, 65(N)
Plotting. Automatic plotting of digital solutions, 350(C)
Polnauer, Frederick F.: Bio-mechanics, a new approach to music education, 297
Polonium. Reactor-produced polonium now available for purchase, 445(C)
Porter, W. C. and W. E. Ramsey: A circuit for the limitation of discharge in G-M counters, 153
Potting. Electronic "potting" materials, 103(C)
Powder metallurgy. A new magnetic material, 263(C)
Permanent magnetic materials, 165(F)
Power. High power audio amplifier, 498(C)
Unbalances of untransposed overhead lines (Gross), 473
Probes. New miniature test probes, 170(N)
Pumps. Electromagnetic pump for moving molten metals, 264(C)
Purification of zirconium, 246(N)

Q

Quality control. Gel-time meter, 557(C)
Quantum theory of exposure. Properties of an exponential size-frequency distribution of finite extent (Silberstein), 221

R

Rabies. Hen's egg playing important role in fight against rabies, 353(C)
Radar. A new collision warning radar, 196(C)
New miniature test probes, 170(N)
Radiant heat. New type paint remover, 444(C)
Radiations from Zr^{97} and Nb^{97} (Mandeville, Shapiro, Mendenhall, Zucker and Conklin), 381
Radio. A ferroelectric amplifier (Urkowitz), 517
Lunar reflection of the UHF communications, 70(N)
A new kind of propagation at very high frequencies, 417(N)
Transistors in wide range of experimental applications, 560(C)
Radioactivity. Atomic instruments used in oil exploration, 558(C)
Atomic-powered industrial trucks, 556(C)
Automatic monitor for radiochemical labs, 486(C)
Penetration of gamma-rays, 67(N)
Radiations from Zr^{97} and Nb^{97} (Mandeville, Shapiro, Mendenhall, Zucker and Conklin), 381
Reactor-produced polonium now available for purchase, 445(C)
Scintillation counter for asphalt, 486(C)
Weather prediction by "radioactive" pen, 348(C)
U. S. isotope distribution, 152(C)
Radiochemistry. Automatic monitor for radiochemical labs, 486(C)
Rain. Man-made weather, 99(C)
Rainfall patterns, 445(C)
Ramsey, W. E. and W. C. Porter: A circuit for the limitation of discharge in G-M counters, 153
Reactors. D-c. current-measuring reactor, 559(C)
Recording. Talking books for the blind, 420(N)
Records of research (Jackson), 355
Rectifiers. Titanium-dioxide rectifiers, 328(N)
Relays. New relays for dial telephones, 192(C)
Unbalances of untransposed overhead lines (Gross), 473
Research. Records of research (Jackson), 355
Resins. Gel-time meter, 557(C)
Resistors. NBS pre-cured tape resistor, 245(N)
Roberson, Robert E.: Synthesis of a nonlinear dynamic vibration absorber, 205
Rockets. Army rocket research fights TB, 104(C)
Rubber. Creped parchment paper, 196(C)
Vulcanizing transfers, 164(C)
Russian-English scientific dictionary, 263(C)
Ryder, Frederick L.: Network analysis by least power theorems, 47

S

Safes. Designer foils safe snoopers, 142(C)
Safety engineering. Automatic monitor for radiochemical labs, 486(C)
Designer foils safe snoopers, 142(C)
Fire tests of escalator shutters, 330(N)
Fluorescent street light, 194(C)
Fluorescent tube disposal, 448(C)
Hazards from static electricity, 243(N)
A new collision warning radar, 196(C)
New magnetic flowmeter, 188(C)
New type data recorder and annunciator, 442(C)
Penetration of gamma-rays, 67(N)
Proposed electrical code changes, 440(C)
Water purification unit, 557(C)
Saibel, Edward and Winston F. Z. Lee: Vibrations of a continuous beam under a constant moving force, 499
Science. Russian-English scientific dictionary, 263(C)
Scintillation counters. Atomic instruments used in oil exploration, 558(C)
Scintillation counter for asphalt, 486(C)
Separability. Separability in a class of coordinate systems (Moon and Spencer), 227
Servomechanisms. Compensation of feedback-control systems subject to saturation (Newton), 281, 391
Shapiro, E., C. E. Mandeville, R. I. Mendenhall, E. R. Zucker and G. L. Conklin: Radiations from Zr^{97} and Nb^{97}, 381
Shaw, Milton C.: A yield criterion for ductile metals based upon atomic structure, 109

Shen, D. W. C. and H. N. G. Broadbent: Analysis of partly symmetrical machines by means of unitary transformation, 473
Silberstein, Ludwik: Properties of an exponential size-frequency distribution of finite extent, 221
Silver halide emulsions. Properties of an exponential size-frequency distribution of finite extent (Silberstein), 221
Size effect. A yield criterion for ductile metals based upon atomic structure (Shaw), 109
Size-frequency distribution. Properties of an exponential size-frequency distribution of finite extent (Silberstein), 221
Soil. The earth and the fulness thereof (Bear), 43
Properties of soils, 323(F)
Search for new antibiotics, 191(C)
Solar radiations. Important new sun data expected soon, 263(C)
Solid state physics. Measuring particles in the range 0.005 to 10 microns, 531(F)
Speech. Talking books for the blind, 420(N)
Spencer, Domina Eberle and Parry Moon: Separability in a class of coordinate systems, 227
Stainless steel. Butt welding of very thin stainless steel, 447(C)
Static electricity. Hazards from static electricity, 243(N)
Personal lightning rods?, 390(C)
Stationary solutions of certain nonlinear differential equations (Minorsky), 21
Stereomicroscope. Industrial stereomicroscope, 351(C)
Strength of materials. A yield criterion for ductile metals based upon atomic structure (Shaw), 109
Stretch-forming. Improvement of acrylic aircraft glazing by stretch-forming, 326(N)
Structures. Application of Maclaurin series to the analysis of beams in bending (Hetényi), 369
Vibrations of a continuous beam under a constant moving force (Saibel and Lee), 499
Sun. Important new sun data expected soon, 263(C)
Surgery in your living room, 345(C)
Switches. Mercury jet switch, 448(C)
Synthesis of a nonlinear dynamic vibration absorber (Roberson), 205

T

Talking books for the blind, 420(N)
Tape resistor. NBS pre-cured tape resistor, 245(N)
Taylor, H. Birchard: Charles Day—symbol of American industrial genius, 1
Telemetering. Increased sensitivity of ground-station receiving equipment, 448(C)
Telephony. New relays for dial telephones, 192(C)
Teleplotter. Automatic plotting of digital solutions, 350(C)
Television. Surgery in your living room, 345(C)
Transistors in wide range of experimental applications, 560 (C)
Very-high-frequency transistors, 258(C)
Textiles. Hysteresis brake, 498(C)
Measurement of insulating quality of textiles, 264(C)
Thermal conductivity. Properties of soils, 323(F)
Thermionic ion generation. Climate control through ionization (Martin), 267
Thermoelectric generators, 415(F)
Time studies. Electronic motion analysis, 347(C)
Titanium. Titanium-dioxide rectifiers, 328(N)
Tomovich, Rajko: A universal unit for the electrical differential analyzer, 143
Transistors in wide range of experimental applications, 560(C)
Transistors. Very-high-frequency transistors, 258(C)
Transonic wind tunnel, 195(C)
Transportation. A new type of Diesel locomotive, 104(C)
The truck that goes anywhere, 261(C)
Troposphere. A new kind of propagation at very high frequencies, 417(N)
Trucks. Atomic-powered industrial trucks, 556(C)
The truck that goes anywhere, 261(C)
Tuberculosis. Army rocket research fights TB, 104(C)
Tubes. A new tube-coating method, 560(C)
Turbojets. World's most powerful jet engine, 446(C)
Turbulence. On the invariants in the turbulence in compressible viscous fluids (Krzywoblocki), 317

U

UHF transmission. Lunar reflection of UHF communications, 70(N)
Unbalances of untransposed overhead lines (Gross), 473
Urkowitz, Harry: A ferroelectric amplifier, 517

V

Vaccines. Hen's egg playing important role in fight against rabies, 353(C)
Vibration absorber. Synthesis of a nonlinear dynamic vibration absorber (Roberson), 205
Vibrations. Synthesis of a nonlinear dynamic vibration absorber (Roberson), 205
Vibrations of a continuous beam under a constant moving force (Saibel and Lee), 499
Violin. Bio-mechanics, a new approach to music education (Polnauer), 297
Viruses. Hen's egg playing important role in fight against rabies, 353(C)
Viscometer used in blood studies, 194(C)
Vulcanizing transfers, 164(C)

W

Warning systems. New type data recorder and annunciator, 442(C)
Water. Isotopic method determines water content, 537(N)
Water-purification unit, 557(C)
Watertight binding posts, 195(C)
Weather. Man-made weather, 99(C)
Rainfall patterns, 445(C)
Weather prediction by "radioactive" pen, 348(C)
Welding. Butt welding of very thin stainless steel, 447(C)
White, W. C.: Some events in the early history of the oscillating magnetron, 197
Wind tunnel. A transonic wind tunnel, 195(C)
Windows. Louvred windows, 226(C)
Wood. Framing anchors as joist hangers, 352(C)
Workbenches. Sterilshield cabinets, 196(C)

X

X-ray diffraction. Crystal-growing technique, 168(N)

Z

Zirconium. Purification of zirconium, 246(N)
Radiations from Zr^{97} and Nb^{97} (Mandeville, Shapiro, Mendenhall, Zucker and Conklin), 381
Zucker, E. R., C. E. Mandeville, E. Shapiro, R. I. Mendenhall and G. L. Conklin: Radiations from Zr^{97} and Nb^{97}, 381